

TANNOY®



VS10 BP
Owners Manual

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1. Introduction

The Tannoy VS10BP is a compact, versatile subwoofer system, designed to extend the low frequency response of the V series loudspeakers and increase system headroom.

The VS10BP will extend the frequency response of these systems to below 40Hz and is capable of providing output levels normally be associated with considerably larger enclosures.

The VS10BP comprises one high efficiency 250mm(10") drive unit. The compact dimensions of the V10BP enable it to be used in applications without being obtrusive, such as underneath seating and bars. M10 rigging points are also provided to allow permanent installation. Versatility is further enhanced by the introduction of blanking plates, which allow the bass ports to be moved to another face of the cabinet allowing installation in various orientations.

2. Unpacking

Every Tannoy VS10BP is carefully inspected before packing. After unpacking your loudspeaker, please inspect for any exterior physical damage, and save the carton and any relevant packaging materials in case the loudspeaker again requires packing and shipping. In the event that damage has been sustained in transit notify your dealer immediately.

3. Connectors/Cabling

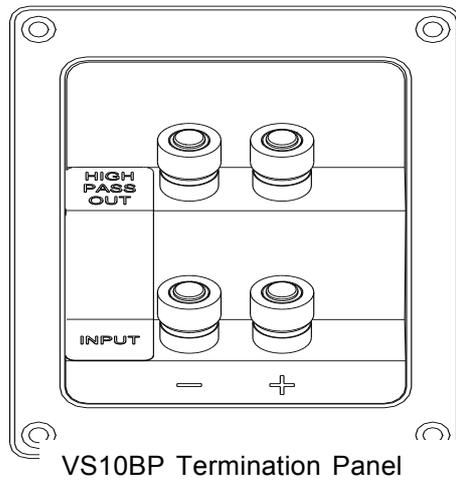
Cable choice consists mainly of selecting the correct cross sectional area in relation to the cable length and the load impedance. A small cross sectional area would increase the cables series resistance, inducing power loss and response variations (damping factor).

Connectors should be wired with a minimum of 2.5 sq. mm (12 gauge) cable. This will be perfectly satisfactory under normal conditions. In the case of very long cable runs the wire size should exceed this, refer to the following table for guidance:-

CABLE RUN (m)	C.S.A. OF EACH CONDUCTOR (mm)	CABLE RESISTANCE Ω	% POWER LOSS INTO 8 Ω LOAD	% POWER LOSS INTO 4 Ω LOAD
10	2.5	0.14	1.7	3.5
	4.0	0.09	1.1	2.2
	6.0	0.06	0.73	1.5
25	2.5	0.35	4.3	8.6
	4.0	0.22	2.7	5.4
	6.0	0.14	1.8	3.6
50	2.5	0.69	8.6	17.0
	4.0	0.43	5.4	11.0
	6.0	0.29	3.6	7.2
100	2.5	1.38	17.0	35.0
	4.0	0.86	11.0	22.0
	6.0	0.58	7.2	14.0

The VS10BP is fitted with two pairs of 4mm binding posts (Fig1) for the amplifier input and highpass output connectors to the satellite loudspeakers. An external active crossover such as the TDX1 or TDX2 is not necessary but will increase the

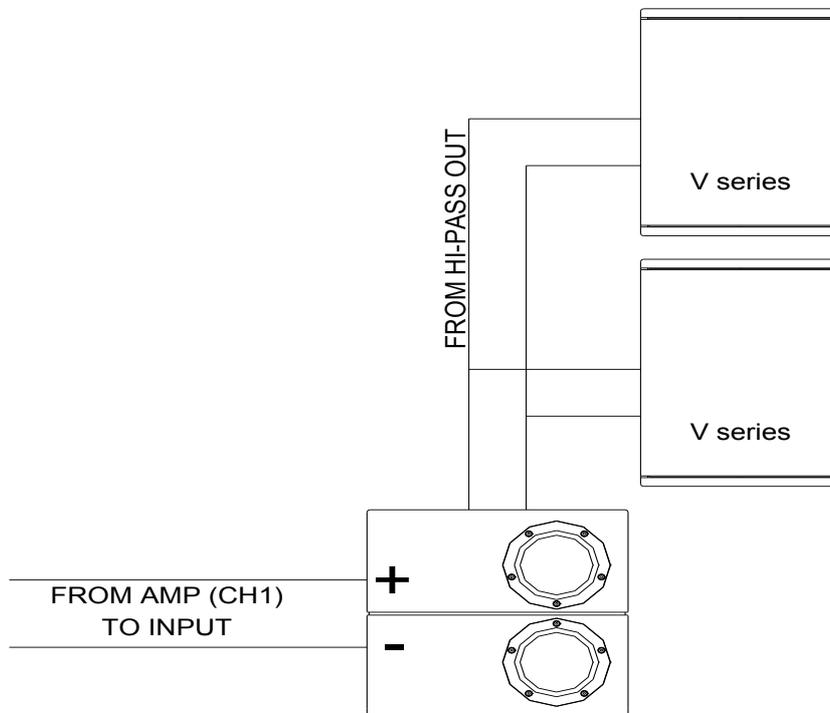
versatility of the system allowing relative attenuation between the subwoofer and satellite loudspeakers and provide delay if required as well as driver protection and optimal integration.



4. System Configurations.

Configuration 1.

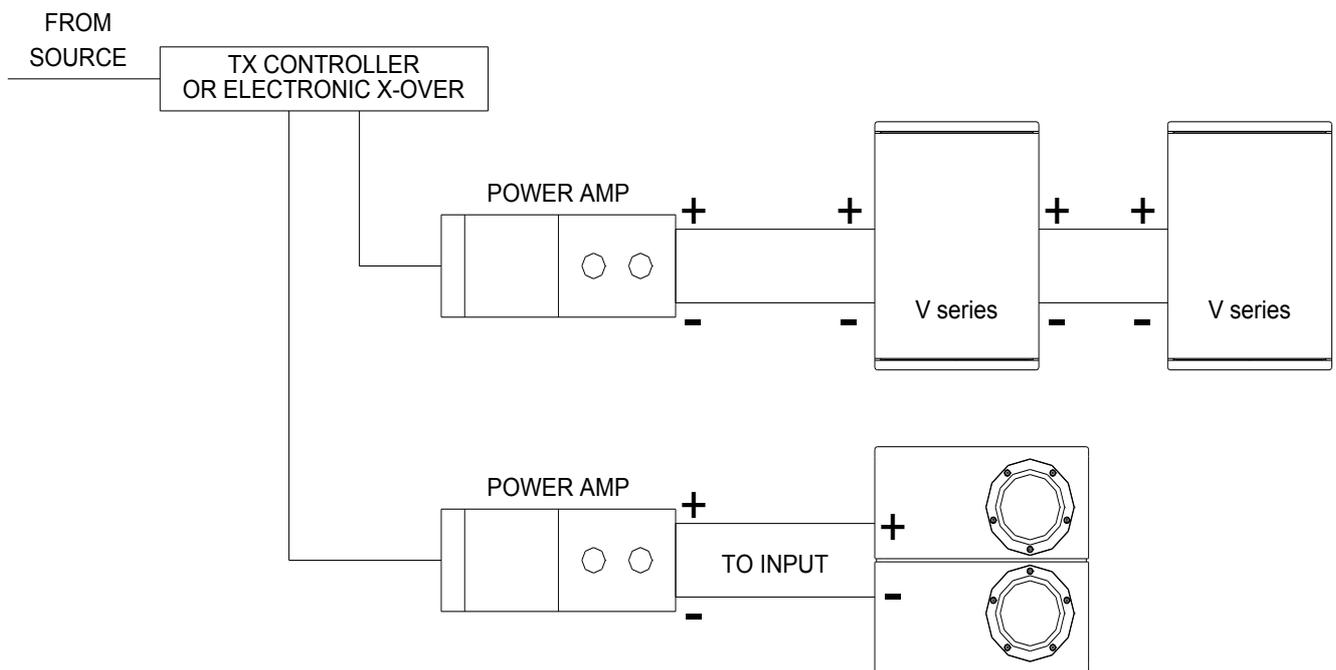
The most basic configuration would be a VS10BP and up to two-8ohm satellite amplifier. The 'performance data' section of this manual shows the impedance presented to the amplifier with one and two V8 (8ohm) loudspeakers.



A TDX1/TDX2 or other OEM system controller can be used to further enhance and increase the flexibility of the system. A system controller will allow the relative levels of the satellites and VS10BP to be adjusted separately. Limiters, delay and

optimal crossover points are also afforded by the introduction of a system controller.

A loudspeaker driven actively as shown below offers a number of other performance advantages, such as increased system headroom. Audio program material is made up of many different frequencies and harmonics. In music material, most of the energy is in the low frequencies, with less in the highs. When both high and low frequencies are present in a signal, the stronger low frequencies can use up amplifier power, leaving little or no reserve for the highs, so they are more likely to cause the power amplifier to clip. In an active driven system, a smaller amp can handle high frequencies, LF amp clipping is less of a factor, and less overall amplifier capacity is needed due to the efficiency improvement in the absence of a passive crossover.



5. Amplification & Power Handling

As with all professional loudspeaker systems, the power handling is a function of voice coil thermal capacity. Care should be taken to avoid running the amplifier into clip (clipping is the end result of overdriving any amplifier). Damage to the loudspeaker will be sustained if the amplifier is driven into clip for any extended period of time. Headroom of at least 3dB should be allowed. When evaluating an amplifier, it is important to take into account its behaviour under low impedance

load conditions. A loudspeaker system is highly reactive and with transient signals it can require more current than the nominal impedance would indicate.

Generally a higher power amplifier running free from distortion will do less damage to the loudspeaker than a lower power amplifier continually clipping. It is also worth remembering that a high powered amplifier running at less than 90% of output power generally sounds a lot better than a lower power amplifier running at 100%. An amplifier with insufficient drive capability will not allow the full performance of the loudspeaker to be realised.

It is important when using different manufacturers' amplifiers in a single installation that they have very closely matched gains, the variation should be less than +/- 0.5dB. This precaution is important to the overall system balance when only a single active crossover is being used with multiple cabinets; it is therefore recommended that the same amplifiers be used throughout.

6. Equalisation/Placement

The VS10BP is designed to need no equalisation or correction to overcome system limitations. As a result, it will only need equalisation to compensate for difficult acoustic environments.

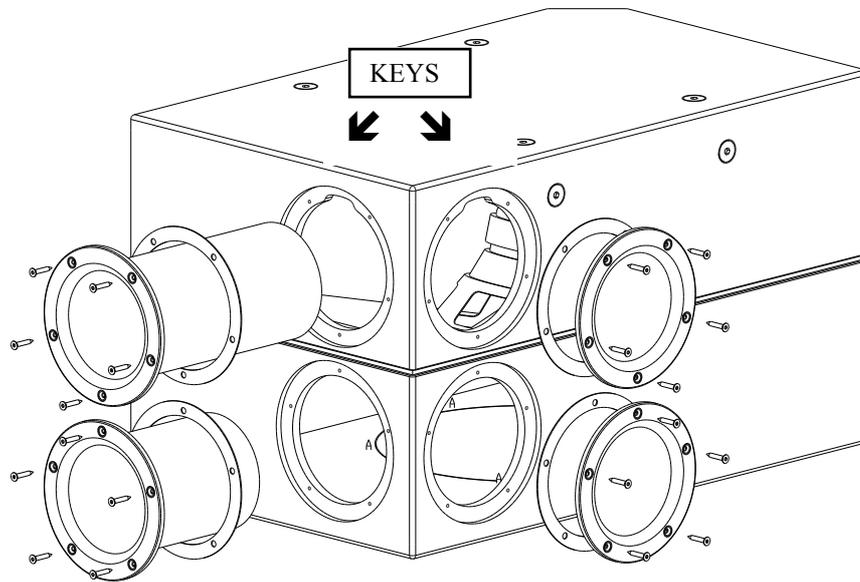
Excess equalisation can reduce system headroom, and introduce phase distortion resulting in greater problems than it cures. If equalisation is required then it should be applied gently and smoothly. Violent equalisation will be detrimental to the overall sound quality.

The frequency band over which a subwoofer operates is essentially omnidirectional, therefore efficiency of the VS10BP may be further enhanced if the unit is placed against a wall, where the radiation in the forward plane will be doubled due to the addition of the reflected rear directed energy, and a 3dB increase in sound pressure will occur. If another boundary is introduced, say a floor, then the effective radiation space is halved again, resulting in a further 3dB lift, and if placed in a corner, once again the sound pressure level will increase by a further 3dB.

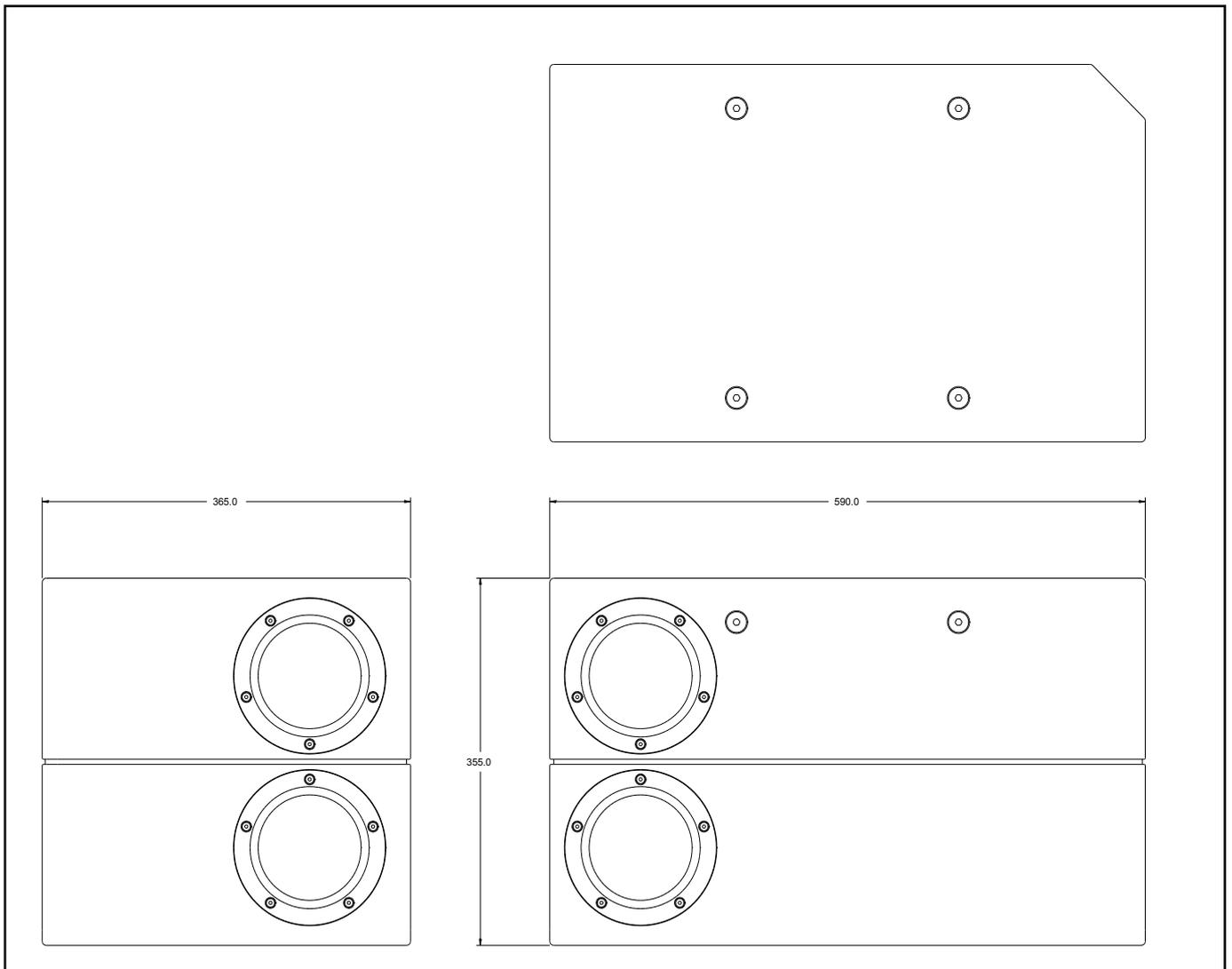
The compact dimensions of the VS10BP allow the VS10BP to fit into small spaces. A unique feature incorporated into the VS10BP further enhances this flexibility;

The Bass Ports on the VS10BP can be moved onto the other face of the cabinet as shown below. Simply remove the blank plates and Bass ports and swap positions. Each chamber in the enclosure utilizes a different length bass port. To avoid placing the wrong Bass port in the wrong chamber the holes in the enclosure are 'Keyed'.

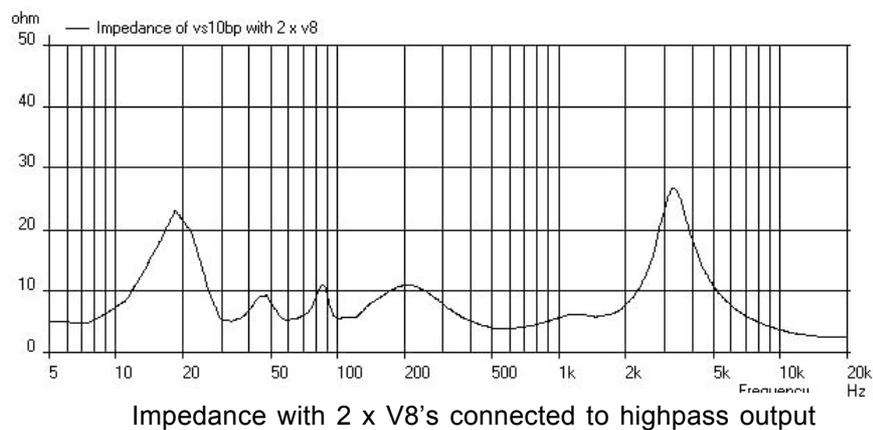
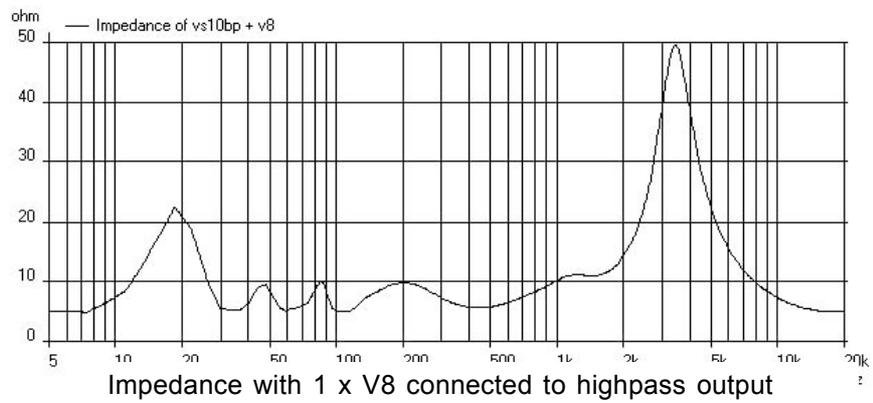
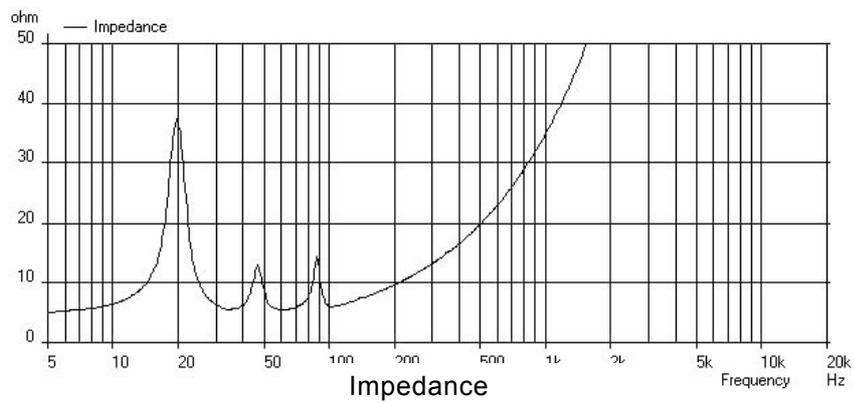
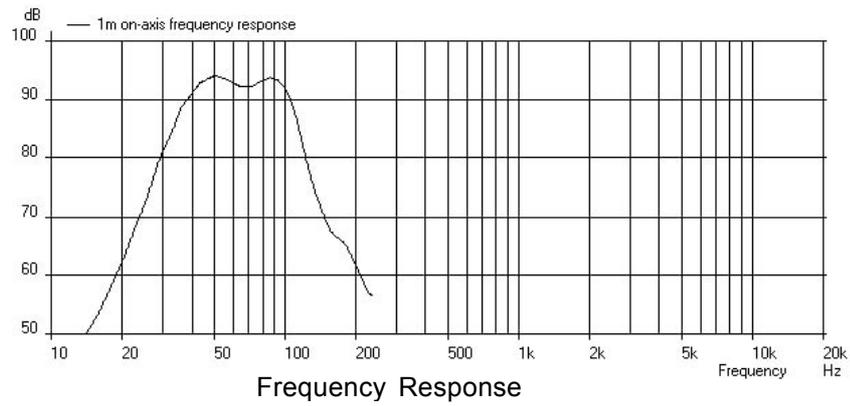
The features described above allow the VS10BP to be placed in any orientation.



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8. Performance Data



9. Technical Specifications

Frequency response (1) +/- 3dB	39Hz - 110Hz 35Hz (-10dB)
Recommended Amplifier Power	200 - 400 watt / 8 ohm
Power Handling	Average(2) Programme Peak (10ms) 200 watt 400 watt 800 watt
Sensitivity (1) 2.83 volt @ 1m	95 dB (half space conditions)
Maximum SPL (3) @ 1m	Average Peak 118 dB 124 dB
Impedance	Nominal 8.0 ohm Minimum 6.0 ohm
Driver Complement	1 x 10" (250mm) LF Driver Type number 2532
Recommended Crossover Point	80Hz - 110Hz, 24dB/octave Recommended High-pass filter-35Hz, 24dB/octave Internal passive crossover @ 110 Hz
Enclosure	50 litre (1.56 cu ft) vented
Finish	Textured black paint (optional in white)
Connectors	2 x Pair 4mm Binding Posts Input & passive highpass output
Fittings	2 x Blanking plate allows bass ports to be moved to another facia 8 x M10 flying inserts.
Dimensions	355mm(H) x 365mm(W) x 590mm(D) 14 "(H) x 14.4"(W) x 23.25"(D)
Weight	17.5 Kg (38.5 lbs)

NOTES:

(1) Average over stated bandwidth. Measured at 1m on axis.

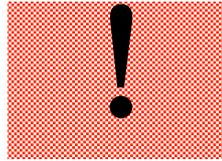
(2) Long term power handling capacity as defined in EIA standard RS - 426A.

(3) Unweighted pink noise input, measured at 1m in half space conditions.

Tannoy operates a policy of continuous research and development. The introduction of new materials or manufacturing methods will always equal or exceed the published specifications which Tannoy reserve the right to alter without prior notice. Please verify the latest specifications when dealing with critical applications.

10. Rigging & Suspension

General Safety Advice



WARNING: As the legal requirements for flying change from country to country, please consult you local safety standards office before installing any product. We also recommend that you thoroughly check any laws and bylaws prior to commencing work. Qualified personnel trained in safe rigging practices should only suspend the system.

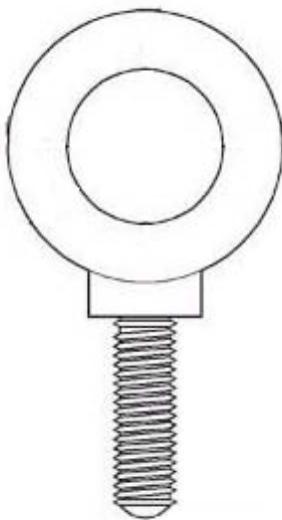
Whenever a Tannoy Professional loudspeaker is fixed to a surface using a Tannoy Professional hardware device, the installer must ensure that the surface is capable of safely and securely supporting the load. The hardware employed must be safely and securely, attached both to the loudspeaker and also to the surface in question, using only the fixing holes provided. Secure fixings to the building structure are vital. Seek help from architects, structural engineers or other specialists if in any doubt.

All loudspeakers flown in theatres, nightclubs, conference centre or other places of work and entertainment must, be provided with an independent, correctly rated and securely attached secondary safety – in addition to the principle hardware device. This secondary safety must prevent the loudspeaker from dropping more than 150mm (6") should the principle hardware device fail.

Threaded inserts are fitted to the VS10BP to allow the suspension of a single enclosure. Never suspend one enclosure from another to form an array or cluster using only these fittings.

If eyebolts are being used then only forged shoulder eyebolts should be used with a thread length of 30mm (see section 8.3).

SECUR ET – VEB Eyebolt



The Tannoy VS10BP loudspeaker can be flown with high quality VEB M10 eyebolts with collar to BS4278:1984. The loudspeaker is equipped with internal steel braces, which also double as the flying points, and accept VEB M10 eyebolts.

To install the VEB M10 eyebolts remove the original M10 counter sunk screws from the locations you wish to install the VEB M10 eyebolts. Then replace these counter sunk M10 screws with the VEB M10 eyebolts.

Important: It is imperative for safety reasons that two eyebolts linked to two independently fixed straps are used per cabinet. VEB eyebolts should be installed into the relative sides of the cabinet, and should NEVER be installed on the top of the cabinet. Never suspend one enclosure from another to form an array or cluster using these fittings. Never attempt to use forged eyebolts i.e. formed from a steel rod and bent into an eye.



11. System Configurations & OEM Controllers

With the vast array of digital loudspeaker management systems available it is inevitable that the user may opt to use a controller other than a Tannoy controller as part of a large scale integrated system. The VS10BP has been designed to need no external equalisation to overcome system limitations. Below is a list of recommended parameters; these parameters can be further tailored depending on the acoustic environment or specific application:-

Parameter	Unit/Name	
Gain	(dB)	User definable
Delay	(ms)	User definable
Polarity		Positive
HPF	Freq (Hz)	35
	Slope (dB/oct)	24
	Filter Shape	Butterworth
LPF	Freq (Hz)	80 – 110
	Slope (dB/oct)	24
	Filter Shape	Butterworth
PEQ 1	Freq (Hz)	65
	Level (dB)	+3
	Type	Parametric
	Q / Bandwidth	2.5

12. VS10BP Service Parts & Accessories

Part Number	Description
7900 xxxx	Driver Kit - 2532
7900 xxxx	Recone Kit - 2532
8001 2820	VEB – Secur ET – Eyebolts M10

13. Warranty

No maintenance of the VS10BP loudspeaker is necessary.

All Tannoy professional loudspeaker products are covered by a 5 year warranty from the date of manufacture subject to the absence of misuse, overload or accidental damage. Claims will not be considered if the serial number has been altered or removed. A Tannoy Professional dealer or service agent should only carry out work under warranty. This warranty in no way affects your statutory rights. For further information please contact your dealer or distributor in your country. If you cannot locate your distributor please contact Customer Services, Tannoy Ltd at the address given below.

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DO NOT SHIP ANY PRODUCT TO TANNOY WITHOUT PREVIOUS AUTHORISATION

Our policy commits us to incorporating improvements to our products through continuous research and development. Please confirm current specifications for critical applications with your supplier.

14. Declaration of Conformity

The following apparatus is/are manufactured in the United Kingdom by Tannoy Ltd of Rosehall Industrial estate, Coatbridge, Scotland, ML5 4TF and conform(s) to the

protection requirements of the European Electromagnetic Compatibility Standards and Directives relevant to Domestic Electrical Equipment. The apparatus is designed and constructed such that electromagnetic disturbances generated do not exceed levels allowing radio and telecommunications equipment and other apparatus to operate as intended, and, the apparatus has an adequate level of intrinsic immunity to electromagnetic disturbance to enable operation as specified and intended.

Details of the Apparatus: Tannoy Contractor Loudspeaker
Model Number: VS10BP

Associated Technical File: EMCVS10

Applicable Standards: EN 55103-1 Emission
EN 55103-2 Immunity

EN60065 Electrical Safety

Signed:

A handwritten signature in black ink, appearing to read 'G. Henley', with a long horizontal flourish extending to the right.

Position: Engineering Director
Tannoy Professional

Date: 4th July 2004

For Tannoy Ltd

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